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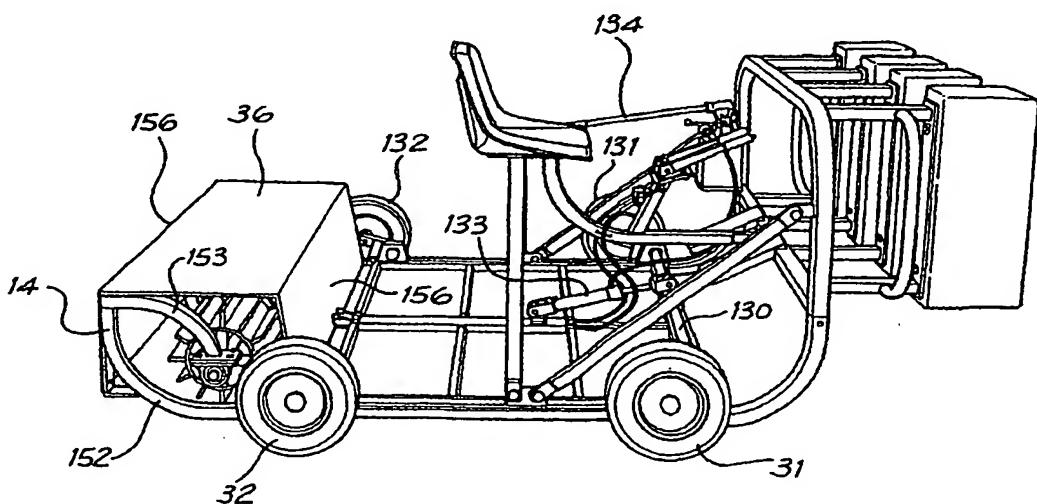
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(54) Title: SCRUM MACHINE



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(57) Abstract: A scrum machine (10) comprises pads (21) which are carried by a central frame portion (12) on which is mounted two pairs of ground engageable wheels (31, 32, 131, 132). The ground engageable wheels may be raised and lowered to adjust the extent to which the central frame rests on the ground. Additional resistance is offered by optional traction wheels (37, 38). Each traction wheel has its own brake (151).

## SCRUM MACHINE

### TECHNICAL FIELD

This invention relates to practice equipment for rugby and more particularly to a machine for practising the rugby scrum.

### 5 BACKGROUND

Scrum machines are known and a widely used scrum machine consists of a steel frame having a ground engaging sled section which carries a timber platform and three spaced apart pads on a sub-frame at one end of the sled which the front row of the scrum pack against. Weight is applied to the platform 10 in the form of concrete blocks or spare players.

The technique of scrummaging has become highly technical and it is a facet of rugby play which must be taught and practiced correctly. Current scrum machines do not permit all aspects of scrummaging techniques to be practiced correctly and there is, therefore, a need for an improved scrum 15 machine.

### DISCLOSURE OF THE INVENTION

According to one aspect of the invention there is provided a scrum machine comprising:

- (i) a sled-like ground-engaging frame having a central portion which extends between a front portion and a rear portion,
- (ii) a plurality of pads on the front portion,
- (iii) at least one traction wheel mounted on the rear portion external of the central portion, the or each traction wheel being of generally cylindrical form and having outwardly directed ground-engaging projections for increasing the friction between the or each traction wheel and the ground, and
- (iv) a braking mechanism associated with the or each traction wheel.

In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings in which:

5 Fig. 1 is a side perspective view of a scrum machine according to one embodiment of the invention,

Fig. 2 is a view from one rear corner of the machine shown in Fig. 1,

Fig. 3 is a rear view of the machine shown in Fig. 1,

Fig. 4 is a view from one front corner of the machine shown in Fig. 1,

10 Fig. 5 is an enlarged view of the control section of the scrum machine shown in Fig. 1,

Fig. 6 is an enlarged view of one embodiment of the ground wheels on one side of the scrum machine shown in Fig. 1,

Fig. 7 is a figure showing the ground wheels of Fig. 6 in the travelling position, and

15 Fig. 8 is a view showing the ground wheels of Fig. 6 in the raised position.

Fig. 9 is a perspective view of a scrum machine incorporating a second embodiment of the ground wheels,

20 Fig. 10 is a perspective view of the traction wheels and rear frame portion from under the platform.

As shown in Figs. 1 to 4, the scrum machine 10 includes a sled-like main frame 11 that has a central frame portion 12, a front frame portion 13 and a rear frame portion 14. The central portion 12 includes a platform 15 and a sub-frame 16 that carries an operator's seat 17. The vertical front portion 13 has an array of upper and lower spaced horizontal arms 18, 19 which project forwardly of the front frame portion 13. The forward ends of the arms 18 and 19

19 carry mounting plates 20 to which pads 21 are removably secured. Support arms 22 extend between the outermost arms 18 and 19. The lower arms 19 are mounted on the cross bar 23 and the upper arms 18 are mounted on a cross bar 24. The cross bar 23 also has two foot rests 25 in front of the seat  
5 17.

Braces 26 extend between the upper part of the front frame portion 13 and the central part of the central frame portion 12. A strut 27 which extends between the seat-sub frame 16 and the cross bar 23 has a control panel 28. The panel 28 is located within arm's length of the seat 17 and carries two hand  
10 levers 29 and 30 for a brake system to be described below.

Front and rear ground engageable wheels 31 and 32 are pivotally mounted on each side of the central portion 12 of the frame 11. As can be seen in the example of Fig. 7 and 8, the wheels 31 and 32 are mounted on crank-like members which are connected together and thus synchronised by  
15 link 33 which is pivoted to a second link 34 that is raised and lowered by the control arm 35 to raise and lower the ground wheels 31 and 32 so that the machine 10 may be made to resist movement or easily transported as required. In one embodiment, for example as shown in Figs. 6 to 8, the front and rear wheels 31, 32 on each side are raised and lowered simultaneously by  
20 the control arm 35. In a second embodiment, shown in Fig. 9, all four ground wheels 31, 32, 131 and 132 are raised and lowered simultaneously. This may be accomplished by interconnecting the left and right side pairs of ground wheels with a common pivot shaft 130. The rotating shaft 130 has a tab welded to it which is acted on by a hydraulic cylinder 133. Rotation of the axle  
25 130 has the same effect as the operation of the control arm 35, that being to raise and lower the ground wheels, (in this instance), in unison. The hydraulic cylinder 133 is pressurised from an actuating handle 134 which is conveniently

mounted so that the hand grip of the handle 134 is within arm's reach of the seated scrum machine operator. The handle 134 may be to a hydraulic pump or to a valve controller in more elaborate embodiments.

It will be appreciated that the control over the height of the four ground 5 wheels, 31, 32, 131 and 132 provides the scrum machine operator with the opportunity to adjust the resistance offered by the scrum machine 10. When the ground wheels are fully raised off the ground, the machine offers the maximum resistance. When the wheels are fully lowered, the machine offers more resistance. Intermediate positions for the ground wheels provide 10 intermediate levels of frictional resistance. This is particularly useful if the training of younger players that are not able to easily displace the scrum machine when the wheels are raised off the ground.

In some embodiments of the invention, the rear frame portion 14, traction wheels 37, 38 and the associated brakes for the traction wheels are 15 eliminated, this arrangement being ideally suited for younger or lighter players.

As shown in Figs. 2, 3 and 10 the rear portion 14 of the frame 11 has a platform 36 beneath which there is pair of separately mounted friction or traction wheels 37 and 38. The traction wheels 37, 38 together extend substantially the full width of the machine 10. Each traction wheel consists of a 20 drum 39 mounted on a shaft 40 which extends between the outer part of the rear portion 14 of the frame 11 and a central support 41. Around the periphery of each drum there are a plurality of longitudinal extending outwardly directed parallel, blunt edged slats 150 which preferably extend the full length of the drum 39 and which engage the ground and resist movement of the machine. 25 Each shaft 40 carries a brake disc or plate 42. Each brake plate 42 is engaged by a disc brake mechanism 151 independently controlled by the hand levers 29 and 30 (or by foot brakes) or other hydraulic mechanisms so that variable

braking loads may be applied to the individual brake plates 42. For example, with one traction wheel brake and the other traction wheel free, the machine will "wheel" to simulate a wheeling scrum.

As shown in Figs. 9 and 10, the rear frame portion 14 may be fabricated from upper and lower curved elements 153, 153. the lower curved elements 152 are preferably three in number, one to each side and one located centrally 154. They curve upward from the central frame portion 12 and thereby define curved skids which may engage the ground and slide if the front of the scrum machine 20 is lifted during use. The upper curved elements 153 extend forward and down. The shafts 40 are suspended from the lower ends 155 of the upper elements 153. The elements 152, 153 also serve as an internal frame or support to the combined platform 36 and cowl 156, which (as shown in Fig. 9) covers the front, rear and top of the traction wheels 37, 38 and serves as a sturdy support for weights or players. Although the weight of the machine itself and the effect of the traction wheels will provide substantial resistance to a scrum, weights or spare players may be placed on either the central or the rear platform 36 of the cowl 156 to provide added resistance.

Various details of design and construction may be made without departing from the scope and ambit of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A scrum machine comprising:
  - (i) a sled-like ground-engaging frame having a central portion which extends between a front portion and a rear portion,
  - (ii) a plurality of pads on the front portion,
  - (iii) at least one traction wheel mounted on the rear portion external of the central portion, the or each traction wheel being of generally cylindrical form and having outwardly directed ground-engaging projections for increasing the friction between the or each traction wheel and the ground, and
  - (iv) a braking mechanism associated with the or each traction wheel.
2. A scrum machine according to claim 1 wherein the braking mechanism is operated by a hand lever accessible to an operator on the central portion of the frame.
3. A scrum machine according to claim 1 or claim 2 wherein the rear portion includes a frame which supports a shaft upon which the or each traction wheel is mounted.
4. A scrum machine according to claim 3 wherein the frame of the rear portion supports a cowl which covers the or each traction wheel from above.
5. A scrum machine according to any one of claims 1 to 4 and including a pair of traction wheels which extends substantially the full width of the frame.

6. A scrum machine according to claim 5 wherein the braking mechanism comprises two independently operated brakes, one for each traction wheel, which can apply a variable braking load to each traction wheel to simulate a wheeling scrum.

7. A scrum machine according to claim 6 wherein each independent brake is a disc brake.

8. A scrum machine according to claim 7 wherein each disc brake is controlled independently by a hand lever accessible to an operator on the central portion.

9. A scrum machine according to any one of the preceding claims wherein the central portion of the frame comprises an operator's platform on which is mounted an operator's seat.

10. A scrum machine according to claim 9 wherein the central portion of the frame supports two pairs of adjustable ground-engageable wheels, one pair being mounted on one side of the frame and the other pair being mounted on the other side of the frame.

11. A scrum machine according to claim 10 wherein each pair of ground wheels is interconnected by a link which acts, under operator's control, to raise and lower each wheel in the pair simultaneously.

12. A scrum machine according to claim 11 wherein both pairs of ground wheels are interconnected by a pivoting shaft which acts to raise and lower both pairs simultaneously.
13. A scrum machine according to claim 12 wherein the pivoting shaft is pivoted by a hydraulic cylinder which is actuated by a control handle which is mounted within arms reach of the operator's seat.
14. A scrum machine according to any one of the preceding claims wherein the frame has braces which extend the front portion and the central portion.

15. A scrum machine substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 14th day of July 2003

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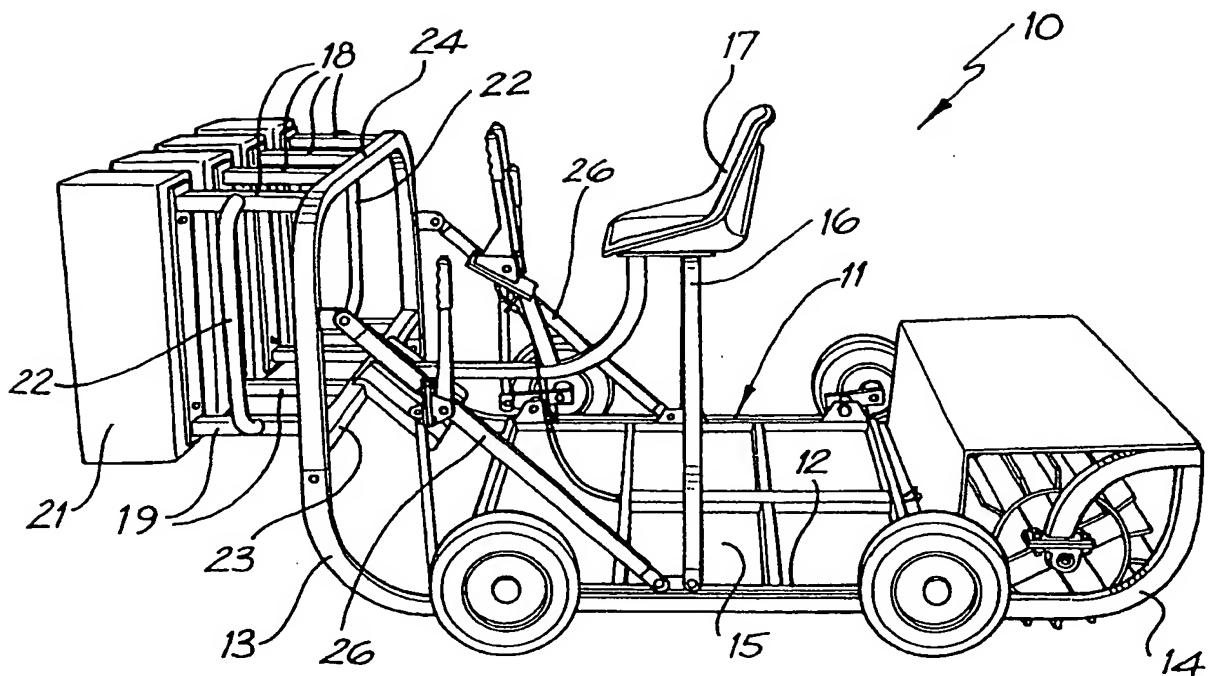
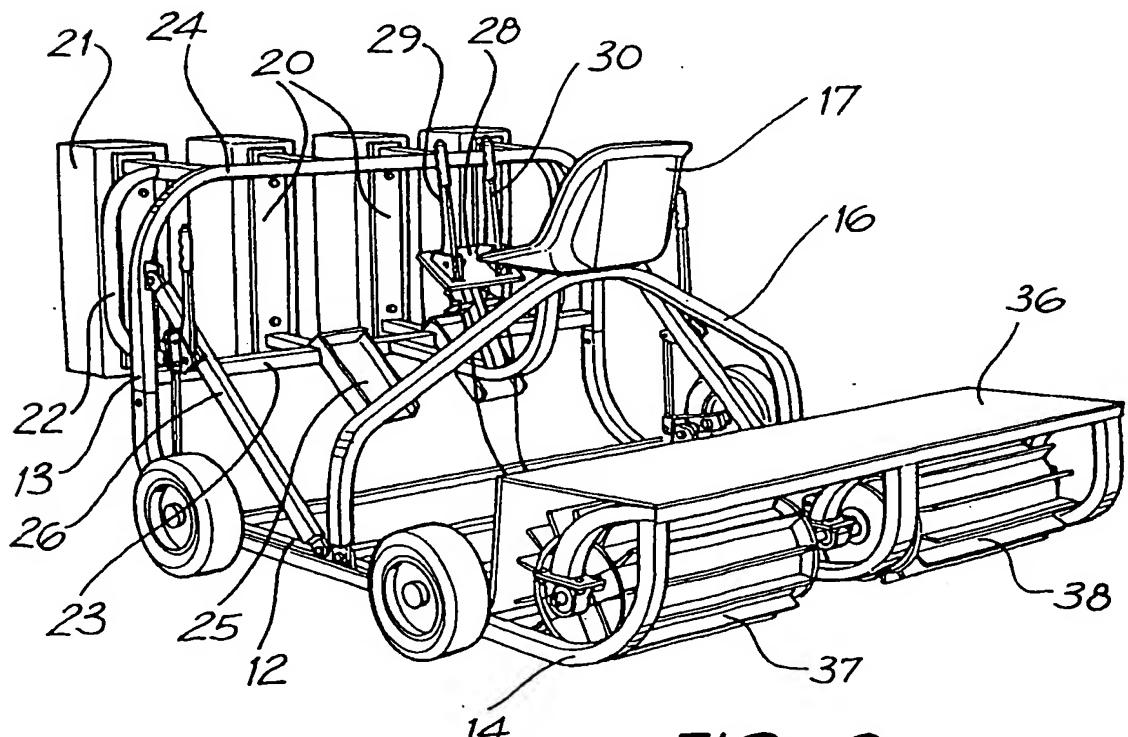


FIG. 1



Substitute Sheet FIG. 2

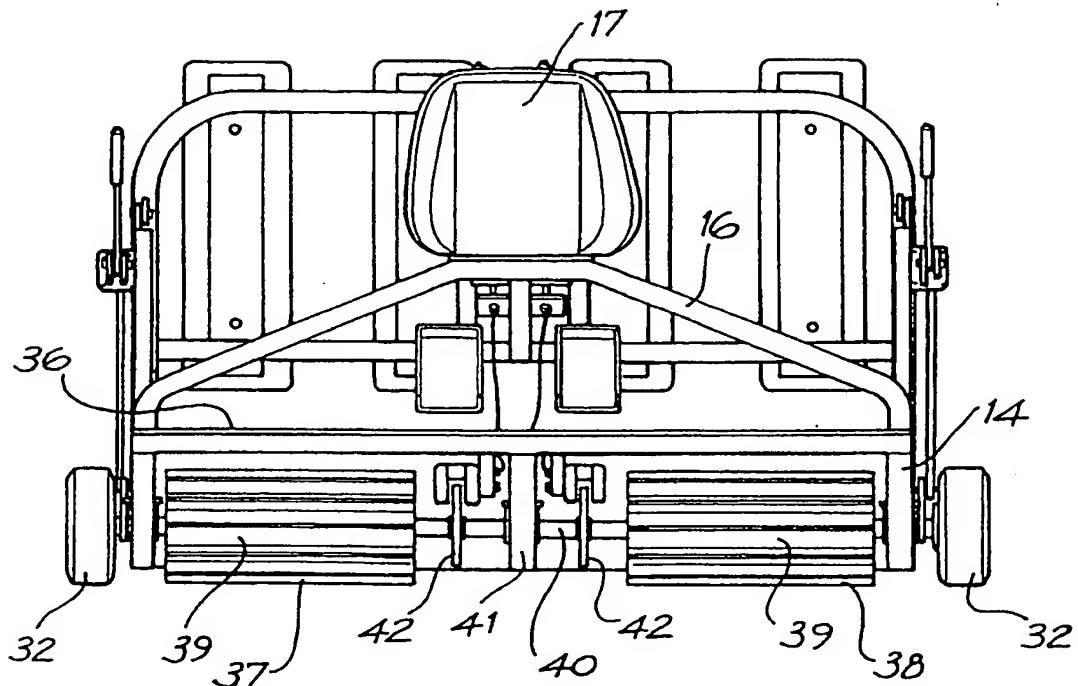


FIG. 3

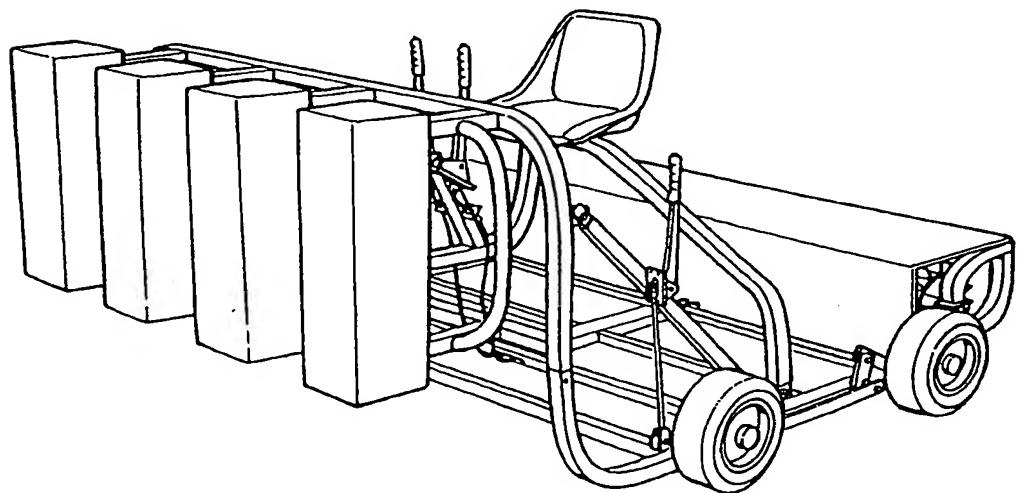


FIG. 4

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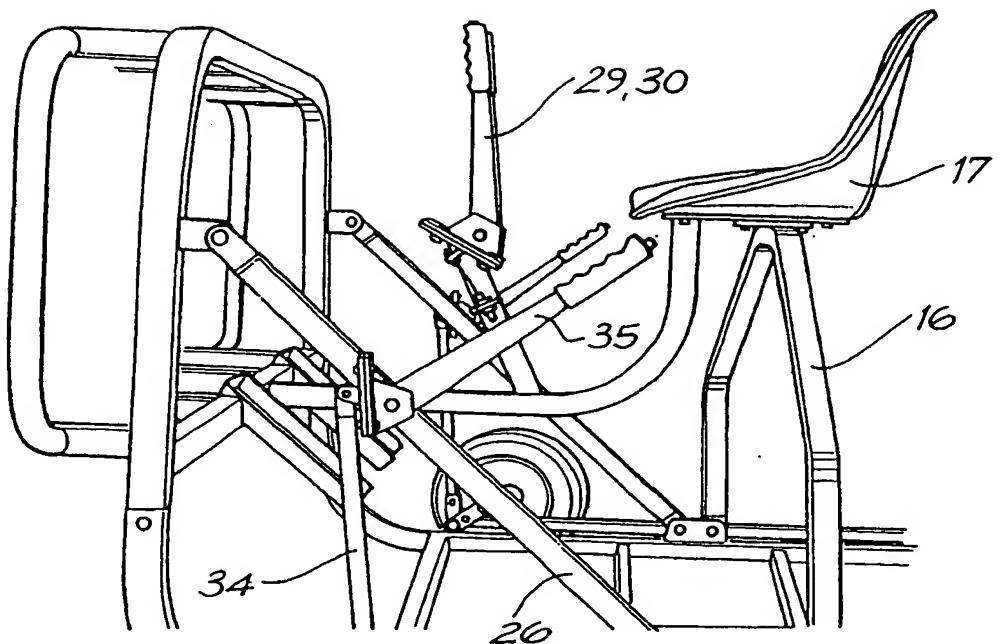


FIG. 5

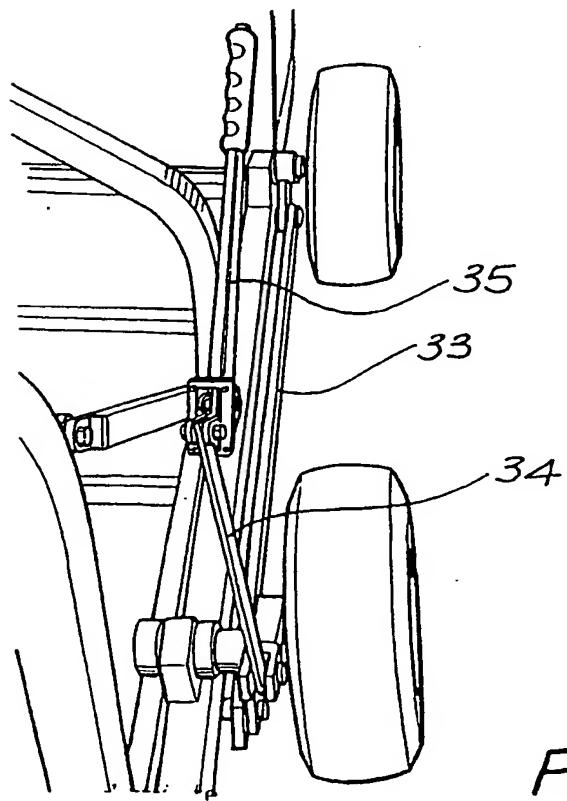


FIG. 6

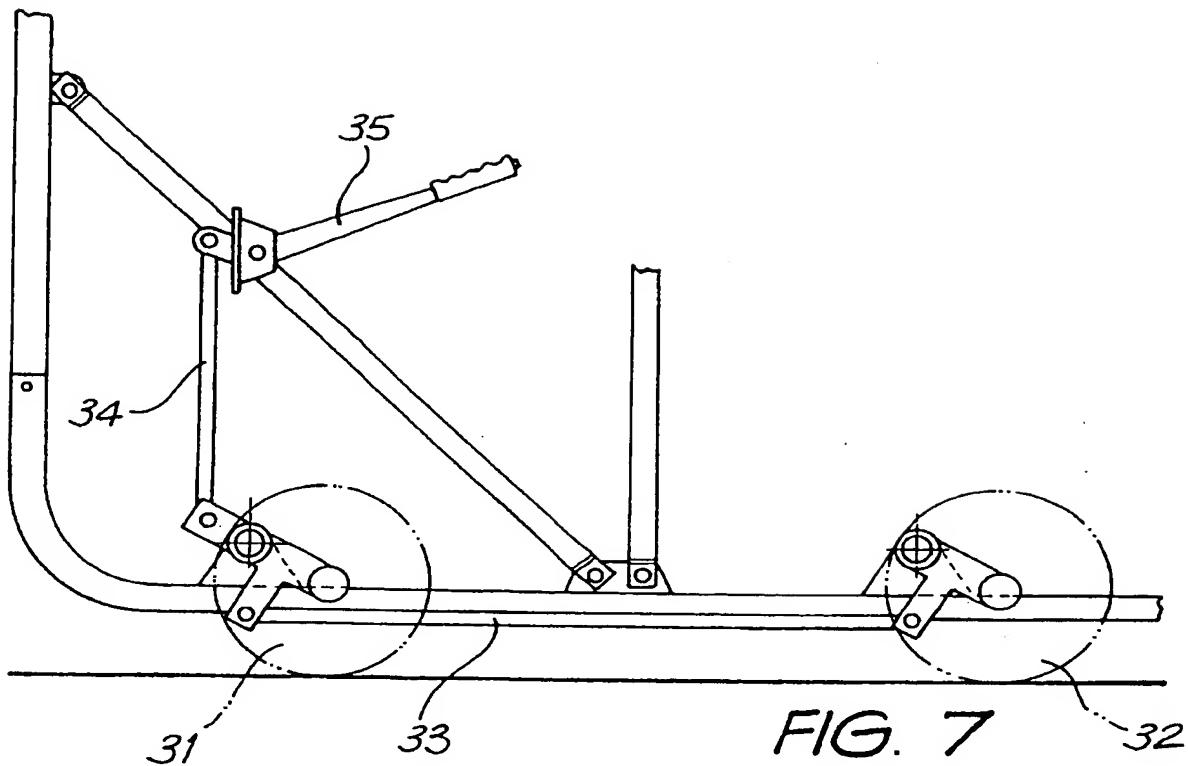


FIG. 7

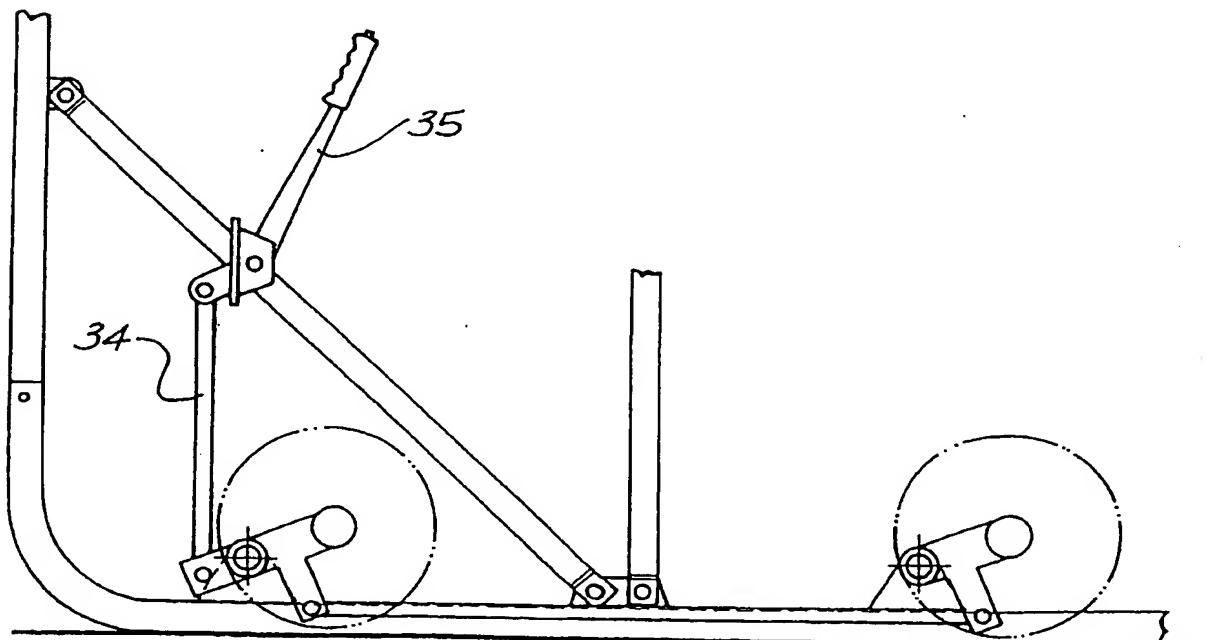
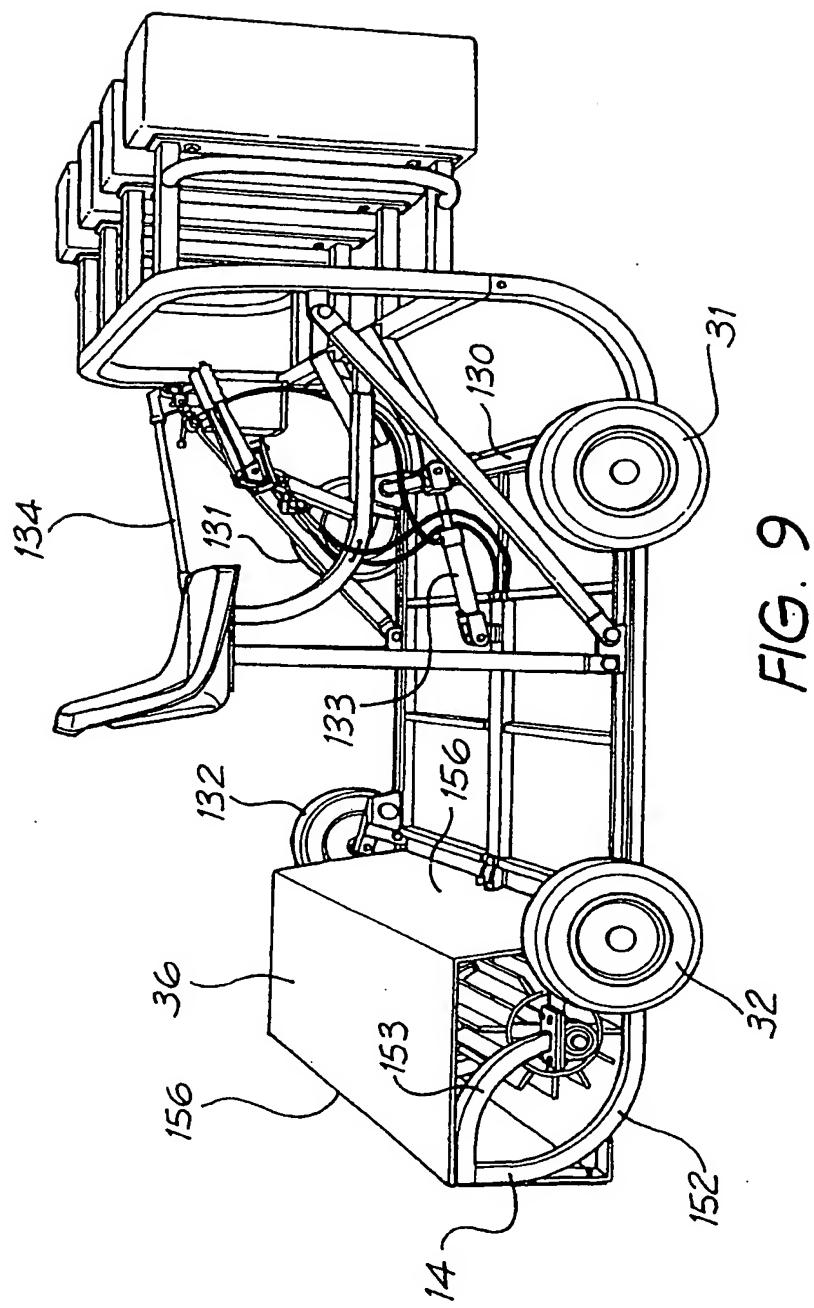


FIG. 8

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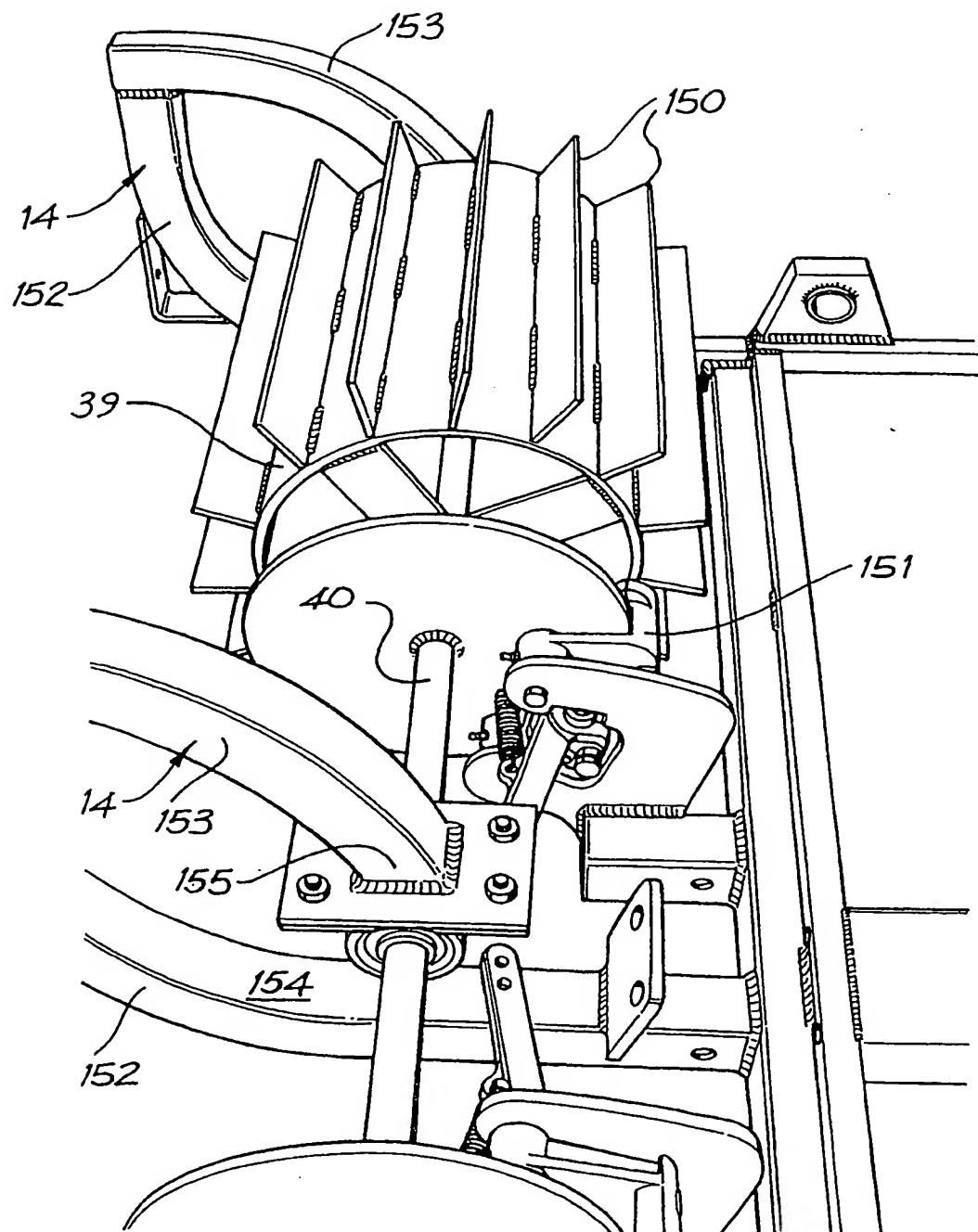


FIG. 10